

REMARKS

The amendment after final placing application in the condition for allowance is submitted in response to the final Office Action of August 30, 2005 and to a subsequent telephone interview with the Examiner on November 21, 2005.

The disclosure is objected to for the following reasons: a) In the replacement paragraph to page 4, line 20, 10th line therein, note --where -- should follow "point" for clarity of description; b) In the replacement paragraph to page 5, line 9, 12th line therein, "the" (i.e. prior to "impedance") should be deleted and -the-should be inserted prior to "generation" for a proper characterization; c) In the replacement paragraph to page 11, line 10, fourth line therein, note that -(i.e. 0.88B) of the magnetic flux density-should follow "88%" for clarity of description; 20th line therein, note that reference to "the various configuration" is vague in meaning; 20th & 21st lines, note that "not continuously but in steps" should be rephrased as -- in steps instead of continuously -- for a proper characterization; and d) Page 13, line 7, note that "mountain form" is vague in meaning and needs clarification.

The appropriate corrections are implemented in the present Amendment.

The disclosure is also objected to because the reference labels need description relative to the specification description of Figures 2, 3, 4 and 6. The appropriate descriptions are added in the specification to describe the reference labels of Figures 2, 3, 4 and 6, as requested by the Examiner.

The amendment filed on June 20, 2005 is objected to under 35 U.S.C. 132(a) for introducing a new matter into the disclosure. The Examiner states that the replacement paragraph to page 4, line 20, 11th line therein and in the replacement paragraph to page 7, line 14, 21st line therein, for the "magnetic flux density B", the diametrical change from the originally recited "maximum" value to the amended "minimum" value raises the issue of "new matter". *The examiner is requiring cancellation of the new matter in the reply to the office action.*

The Applicant is of opinion that using originally recited "maximum" on page 8, line 21 in the expression "The magnetic flux b in the equation (1) is defined as the maximum of the magnetic flux B in the interaction space by the magnetron operation theory, "The basic of microwave technology" by Makimoto et al, Hirokawa Shoten, 1980, twelfth edition, p. 278, formula 10.28." is a typing error.

First, the correct recitation of "minimum" instead of "maximum" can be found on page 4, lines 16-17 of the original patent application, wherein it is stated that "b is the minimum of the magnetic flux density (in Tesla) along the axis of the interaction space". Similar definition of b can be found in claim 1 of the original application (see page 16, lines 3-4).

Furthermore, the Applicant submits to the USPTO the original publication of Makimoto et al. along with the English translation. Document of Makimoto et al. shows equation (10.28), which is equivalent to Equation (1) of the present patent application (wherein $\sigma = r_c/r_a$). Makimoto et al. also show on 4th line of the same page 273 or in the last paragraph on page 11 of the English translation that "the electrons do not reach the anode in the case they are not less than B in the above equation", i.e., the magnetic flux is not less than B. This means that the magnetron oscillation occurs only when the magnetic flux is less than B in equation (10.28) of Makimoto et al., and the magnetron oscillation most

easily occurs at a place where the magnetic flux is minimum.

The above arguments are in line with the discussions of introducing a new matter during a telephone interview with the Examiner on November 21, 2005. These arguments prove that using originally recited "maximum" instead of "minimum" on page 8, line 21 is a typing error and withdrawal of objection under 35 U.S.C. 132(a) to introducing a new matter in the Amendment B filed on June 20, 2005 is requested.

Claims 1 and 2 were rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement as they contained subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The Examiner states that in claim 1 the recitation of the "magnetic Flux density" being "minimum along said axial direction" does not have support by the original specification that therefore is "new matter".

As proven above, using "maximum" instead of "minimum" on page 8, line 21 was a typing error. Also the correct recitation of "minimum" can be found on page 4, lines 16-17 of the original patent application, thus the specification supports claim 1. Therefore, withdrawal of rejection of claim 1 under 35 U.S.C. 112, first paragraph, is requested.

Claims 1 and 2 have also been rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In the second to last paragraph of claim 1, the Examiner

states that "using of said equation is modified such that ... are applied" is an incomplete recitation and needs clarification; the last paragraph needs clarification because it is unclear whether "at least either..." is a proper characterization. Also the Examiner states that "magnetic flux density" being, on the one hand, "maximum along said axial direction" and on the other hand, "minimum along said axial direction" are contradictory.

In response to the Examiner's rejection, the appropriate corrections are implemented in the present Amendment and appropriate explanations are provided below:

- a) "are applied to" is modified to "identify" in the present Amendment;
- b) "at least either" is substituted to "either";
- c) The Applicant clarifies that "minimum" in the original formulation of the equation (1), as stated in claim 1, is modified to use "maximum" of the magnetic flux density along the axial direction in claim 1. In other words, equation 1 is modified in claim 1 such that the radius r_a and the radius r_c determine a point where magnetic flux density is maximum along the axial direction of the interaction space, i.e., the equation 1 is applied to curved surfaces off center (e.g., at the points of the shortest distances r_a - r_c in figures 4 and 6) of the axial direction of the interaction space. The above arguments are in line with the discussions during the telephone interview with the Examiner on November 21, 2005.


The Examiner also states that in Claim 2 it is unclear with respect to what reference is the "interaction space" considered to be "increased".

In response to the Examiner's rejection, "along the axial direction" after the word "center" in claim 2 is added to accommodate the Examiner's request for clarification.

Claim 1 is further objected to and certain wording clarifications are requested. The appropriate corrections are implemented in the present Amendment.

The rejections and objections of the Official Action, dated August 30, 2005, having been obviated by amendment or shown to be inapplicable, withdrawal thereof is requested, and the passage of the claims to issue is earnestly solicited.

Respectfully submitted,



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